Carpenter Road Emergency Stabilization & Rehabilitation (ESR)

Environmental Assessment

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Bureau of Land Management

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INTRODUCTION TO THE PROPOSED PROJECT

The Bureau of Land Management (BLM), Border Field Office is proposing treatments, under emergency stabilization and rehabilitation (ESR), in response to the Carpenter Road wildfire (J1P8). There are an estimated 7,649 acres of BLM affected by the Carpenter Road wildfire. The burn severity on BLM administered land was moderate to high. In high-severity burn areas the wildfire killed most of the vegetation. Approximately 1,500 acres within the high burn severity are not expected to recover because there is little to no vegetation that would serve as a seed source. Federal actions, such as ESR treatments, must be analyzed in accordance with the National Environmental Policy Act (NEPA) and other relevant Federal regulations.

BACKGROUND

The Carpenter Road fire is located in the Huckleberry Mountain range in Stevens County, approximately 75 miles northwest of Spokane, WA. The fire started on August 14, 2015, during a high wind event and was determined to be human caused. The fire made large, significant runs and burned a total of 65,012 acres. The fire included 7,649 acres on BLM, 9,342 acres on State, 20,801 acres on Bureau of Indian Affairs (BIA), and 27,220 acres on private. The fire was contained on September 19, 2015.

The 4,800-acre Huckleberry Stewardship project was affected by the Carpenter Road fire. The stewardship project, in the last year of contract, had moderate to high burn severity which resulted in 65-75% mortality within the units.

Many cultural resources are located within in the Carpenter Road fire. Most of these are historic sites related to the rich mining history of the area. The most notable mines in the fire area include the Deer Trail, the Queen Seal, the Germania, the Tunk, the Togo, and the Cleveland. There are many other smaller claims and lodes scattered throughout the burn area. Local Native American groups consider this part of their traditional use area. Important vegetation includes huckleberry bushes and cedar trees as well as those important for game species.

Noxious weed populations occur along the main road system in the burn area. The following weeds have been documented in the fire area: diffuse knapweed, spotted knapweed, St. Johnswort, Dalmatian toadflax, Canada thistle, bull thistle, and houndstongue.

Areas with higher brush cover typically burned the hottest, and many of these areas experienced moderate to high rates of vegetation mortality. Areas proposed for treatment typically experienced 70-100% vegetation mortality.

The proposed treatments are necessary to facilitate the stabilization and natural recovery of the BLM lands. The treatments will incorporate ground seeding, border fence repair, road maintenance, hazard tree removal, contour felling, and noxious weed control associated with the stabilization of natural resources and safety of public users. In addition, treatments would ensure that continued BLM managed activities do not impact adjacent private lands. Treatments are designed to target areas where fire

severity was high to reestablish native vegetation for wildlife habitat, prevent soil erosion, and limit expansion of noxious weeds and other invasive species that occur in the area.

PROJECT LOCATION

The Carpenter Road ESR project area consists of approximately 1,500 acres within the burn area, located in Stevens County, 7 miles east of Fruitland, WA. The attached map shows an overview of the project area and the perimeter of the Carpenter Road fire. The legal description includes:

T. 29 N R. 37 E Sec. 1, 2, 11-15

T. 29 N R. 38 E Sec. 6, 18

T. 30 N R. 38 E Sec. 9

PURPOSE AND NEED

The BLM needs to take action now to mitigate the damage caused by the Carpenter Road fire. The wildfire damaged infrastructure (fences and roads) and natural resources. The wildfire also poses a potential threat to public safety and natural resource recovery throughout the high-severity burn area. The purpose of implementing ESR actions for the Carpenter Road fire is to stabilize the structure and function of fire damaged ecosystems and management infrastructure.

LAND USE PLAN CONFORMANCE

Land Use Plan Name: Spokane Resource Management Plan (RMP)

Date Approved/Amended: Approved 1987/Amended 1992

The proposed action is in conformance with the Spokane RMP, even though it is not specifically provided for, because it is clearly consistent with the general management objectives (p. 12) of protecting or enhancing water quality, maintaining and/or improving range productivity, and managing upland habitat for wildlife species.

The Record of Decision (ROD) for the 1987 Spokane District Resource Management Plan (RMP) states “All unplanned ignitions (wildfires) will have a timely post burn review and evaluation in order to define appropriate rehabilitation and/or monitoring needs” (see p. 42). Even though post-fire stabilization and rehabilitation actions are not specifically addressed in the RMP, conducting a post-fire review and proposing treatments to repair damage caused by wildfires is consistent with the general objectives found on page 12.

ALTERNATIVES

Two alternatives have been developed to respond to the Purpose and Need identified during internal and public scoping: Alternative 1 (Proposed Action) and Alternative 2 (No Action).

ALTERNATIVE 1 (PROPOSED ACTION)

Overview

BLM is proposing to implement ESR actions within portions of the Carpenter Road fire. The proposed actions will stabilize structure and function to fire damaged ecosystems and repair management infrastructure that was damaged. The ESR actions would be located within the Huckleberry Management unit. The actions include the following:

Cultural Site Stabilization

The stabilization of cultural sites will be conducted in conjunction with other treatments throughout the burn area. Ground seeding, fence repair, hazard tree removal, contour felling, and other potential site-specific stabilization measures will all assist in the protection of cultural resources. The sites will be disguised with brush and timber litter and will be fenced off as needed to reduce the potential for vandalism and looting. Cultural sites will be periodically patrolled by BLM archaeologists and Law Enforcement.

BLM/Spokane Tribe Border Fence

Repair approximately 4 miles of border fence between the BLM and the Spokane Tribe. The work would be accomplished utilizing the BPA fence contract. A cadastral survey will be completed. Work would begin in spring of 2016. Specifications for fence construction will include the following for safer big game passage: 1) 3 or 4-strand fence with top and bottom wires smooth, 2) bottom wire is 16 inches or more off the ground, 3) top two wires are at least 12 inches apart.

Road Maintenance and Repair

Clean ditches, blade existing roads, and install water dips along 20 miles of roads within and adjacent to the burned area. Monitoring of these areas ensures that runoff is able to continue flowing through the culverts and ditches. This ensures that no pooling sediment deposition or erosion occurs, which could result in roads being impassable or washed out. BLM maintained roads are heavily utilized by recreationalists.

Hazard Tree Removal

Complete 150 acres of hazard tree removal along all existing roads; cutting would occur 100 feet on both sides of roads. All cut trees will remain on site as down woody debris. The Huckleberry Mountains are a high use area, with public camping, recreating, and hunting throughout the year. The District has numerous projects occurring in the area. These hazard trees pose a threat to employees and the public. In conjunction with the hazard tree removal, BLM will use contour felling to increase slope stabilization along roads and riparian areas.

Noxious Weed and Invasive Control

An Integrated Pest Management (IPM) approach will be implemented to treat noxious and or invasive species within the project area. IPM offers the possibility of improving

the efficiency of pest control programs while reducing their negative impacts. IPM is the use of available tactics or strategies to manage pests. The proposed treatment is to spot treat, along existing roads and landings, diffuse and spotted knapweed, dalmatian toadflax, St. Johnswort, Canada and bull thistle, and other noxious or invasive plant species based on known locations and needs identified by surveys. Known infestation areas (estimated at approximately 200 acres total) and other areas detected by surveys will be treated as needed to prevent expansion beyond pre-fire conditions. Biological and mechanical methods will be considered, including hand treatment, weed trimmers, or mowing. Ground-based spot application of herbicides such as glyphosate, chlorsulfuron, and picloram will be used at rates depending on species and infestation level. Herbicide treatments will be implemented in accordance with standard operating procedures (SOPs) as outlined in the Record of Decision for the Programmatic Environmental Impact Statement (PEIS)(BLM 2007).

Herbicide	**Maximum Rate**	**Typical Rate**
Picloram	1.0 lb. a.e./ac./year;	0.35 lb. a.e./ac./year
Glyphosate	7.0 lb. a.e./ac./year	2.0 lb. a.e./ac./year
Chlorsulfuron	0.047 lb. a.e./ac./year	0.141 lb. a.e./ac./year

Ground/Hand Seed Application

Hand seed approximately 40 acres within the Carpenter Road fire. This area will be seeded to help stabilize the soils, reduce the potential for wind/water erosion on the site, as well as decrease opportunities for noxious weeds and invasive plant species to become established. Seeding with natives will occur in the late fall to early winter, which is the time research suggests will be most successful for the selected seeding species. The selected species, and their seeding rates, have been set at a rate that best balances the cost of the seed with their ability to thrive on the site.

Species	**Seeding Rate**
Mt. Brome (BRMA4)	4 lbs/acre
Idaho Fescue (FEID)	5 lbs/acre
Bluebunch wheatgrass (PSSP6)	2 lbs/acre
Tufted Hairgrass (DECE)	3 lbs/acre
Silky Lupine (LUSE4)	1 lbs/acre
TOTAL PLS	15 lbs/acre

**Changes to seed mix may be done with approval of a BLM Botanist.*

Conifer Seedling Planting

Plant approximately 100 acres at 200 trees per acre within the high intensity burn areas of Cleveland and Turk mines. A mix of approximately 40% Ponderosa pine, 40% Western Larch, and 20% Douglas-fir would be planted. Seedlings would be either Styro 15 containerized seedlings or bare root seedlings in the spring of 2016. Ponderosa would be the predominate species planted on south facing slopes, and western larch, with some Douglas-fir on the north facing slopes and protected draws.

Project Design Features

The project would be implemented with the following resource protection measures:

1. If any changes to the proposed action occur during layout, these changes would be reviewed by the botanist, and additional plant surveys would be conducted as necessary prior to project implementation. If sensitive plant species are discovered during project implementation, site specific measures would be taken to maintain population viability. Measures to protect population viability and habitat for occurrences could include, but not limited to:
    - Altering or dropping portions of proposed activity.
    - Modifying fence building and/or maintenance methods, to protect rare plants and their habitats.
    - Implementing buffers/breaks around plant occurrences.
2. Review cultural sites that may be affected by hazard tree removal, and flag these areas prior to any tree falling. Fell hazard trees away from cultural sites.

ALTERNATIVE 2 (NO ACTION)

No ESR activities would occur.

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

SOILS

Affected Environment

The analysis area for direct, indirect, and cumulative effects on soil resources encompasses all land within proposed treatment areas. The following description of soils within the project area is summarized from the USDA Natural Resources Conservation Service, Soil Survey of Stevens County, Washington (USDA-NRCS, 2015).

Soils within the Cleveland Mine Treatment Area

The northern portion of the Carpenter Road ESR is characterized as ashy silt loams. Parent material is volcanic ash over colluvium weathered from quartzite and/or siltite. These soils are well drained, 49-59 inches deep and grade from a silt loam down to a sandy loam over bedrock.

Several relevant properties of the soils were evaluated: potential for damage by fire, potential for seedling mortality and suitability for hand planting.

Potential for damage by fire and seedling mortality

Rating class terms indicate the potential for fire damage and for seedling mortality.

Low indicates that the soil has features that reduce its potential for fire damage or seedling mortality. Good performance can be expected, and little or no maintenance is needed.

Moderate indicates that the soil has features that result in a moderate potential for fire damage or seedling mortality. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed.

High indicates that the soil has one or more properties that result in a high potential for fire damage or seedling mortality. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration.

Ratings for *potential for damage to soil by fire* are based on texture of the surface layer, content of rock fragments and organic matter in the surface layer, thickness of the surface layer, and slope. The soils are described as having a low, moderate, or high potential for this kind of damage. The ratings indicate an evaluation of the potential impact of prescribed fires or wildfires that are intense enough to remove the duff layer and consume organic matter in the surface layer.

Ratings for *potential for seedling mortality* are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. The soils are described as having a low, moderate, or high potential for seedling mortality.

The proposed treatment units within the Cleveland Mine Area unit are rated as low for both *potential for damage to soil by fire* and for *potential for seedling mortality.*

Suitability for Hand Planting

Ratings for *suitability for hand planting* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately suited, poorly suited, or unsuited to this method of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

The proposed planting unit was rated as moderately suited for hand planting, with limiting factors of slope and rock fragments.

Soils within the South Huckleberry Treatment Area

The southern portion of the Carpenter Road ESR is primarily characterized as ashy silt loams, with some areas of gravelly loam north of Germania Mine in the southern half of section13 and northern half of Section 12. For the silt loams, parent material is volcanic

ash over colluvium weathered from quartzite and/or siltite. These soils are well drained, 39-59 inches deep and grade from a silt loam down to a sandy loam over bedrock.

For the gravelly loam, parent material is residuum weathered from granite mixed with loess and volcanic ash. These soils are well-drained and grade down from gravelly ashy loam to very gravelly sandy loam over bedrock at 16-26 inches.

As with the Cleveland Mine treatment area, the potential for damage by fire and seedling mortality are both rated as low.

Burn Severity

Most of the proposed treatment areas were mapped (by the BIA Burned Area Emergency Response team) as high to moderate burn severity in the Cleveland Mine Area. In the South Huckleberry treatment area, burn severity was generally lower, and was mapped as low to moderate.

The process used to produce most post-fire burn severity maps from pre- and post-fire satellite imagery can detect the fire-induced changes in vegetation more definitively than changes in the soil (Robichaud et al 2010). Since the need for hillslope stabilization treatments is more closely related to soil burn severity than to canopy mortality, post-fire assessment teams often need to correct and verify the soil burn severity map (Robichaud 2007). The burn severity maps for the Carpenter Road Fire are useful but were limited in accuracy by time and weather constraints. It is unlikely that the assessment teams were able to correct and field verify the mapping on the proposed BLM ESR Treatment units.

Factors that are most often associated with post-fire treatment effectiveness are amount of bare soil, soil water repellency, and soil erodibility. Based on differences in particle mass, sandy loam and loam textured soil tend to be less erodible than silt, fine sand, and clay textured soils (Robichaud 2010).

Environmental Consequences

Alternative 1 (Proposed Action)

Direct and Indirect Effects: Proposed treatments in the Cleveland Mine area include noxious weed treatment, hand seeding, and conifer seedling planting. Implementation of these treatments would have only a minimal impact on soils. Hand seeding, together with natural regeneration after the burn, will likely result in a reduction of surface erosion from the treated area within the first growing season. Similarly, within a few years after planting, seedling establishment will help stabilize the soil and reduce runoff in the treated areas. Soil properties described in the affected environment suggest fire damage to the soil should not inhibit re-vegetation efforts.

Cumulative Effects: Prior to the recent 2015 wildfires, soils in the treatment areas had been impacted by road building, mining, and timber harvest. The cumulative effect on soils from the proposed treatments would be minimal.

Alternative 2 (No Action)

Direct and Indirect Effects: Under both alternatives soil impacts from the fire will abate over time under natural recovery processes. As grasses and shrubs re-establish, existing erosion rates and sediment yield will be reduced. Recovery from reduced soil productivity and increased erosion will be slower than under the proposed action.

Cumulative Effects: There are no anticipated cumulative effects to the soil resource from Alternative 2.

HYDROLOGY

Affected Environment

Fire impacts hydrological conditions by destroying accumulated forest floor material and vegetation that provide protection to the mineral soil and hold sediment on hill slopes. When high severity fire results in poor hydrologic conditions (most precipitation does not infiltrate into the soil and stream flow response to precipitation is rapid) runoff and peak flows can increase by several orders of magnitude. Post-fire increases in flooding, channel incision, and debris flows are well documented (MacDonald and Huffman 2004, Megahan and King 2004, and Napper 2006).

The BIA ran a hydrologic model for the Carpenter Road fire and estimated a 1200 percent increase in peak flow for a 10-year design storm (i.e., 10 percent probability in a given year). The actual values of hydrologic forecast models are not as important as the relative magnitude of potential increase. There will be substantial fire-related impacts to stream channels within the proposed treatment areas. Large inputs of sediment from overland flow, bank sloughing, and channel incision are likely to adversely impact channels until riparian vegetation is re-established. Partially offsetting the excessive increase in sediment, the large input of woody debris from the fire will help trap instream sediment and provide structure for the recovery of channel stability.

Environmental Consequences

Alternative 1 (Proposed Action)

Direct and Indirect Effects: Proposed treatments in the Huckleberry (south) area include road maintenance and repair along 20 miles of roads. This will provide improved drainage to many segments of road that are located adjacent to streams or to ditches that ultimately convey road-generated sediment to streams. Cleaning of culvert inlets and subsequent inspections after large runoff events will help reduce the threat of culvert failure. Seeding and conifer seedling planting will increase the amount of vegetation and reduce the time needed for vegetation to re-establish in the burned area. As vegetation increases, the amount of water runoff will be reduced.

Cumulative Effects: Stream channels within the proposed treatment areas have been impacted by logging, mining, road building and wildfire. The proposed improvements to

road drainage will have a beneficial effect on controlling runoff and sediment impacts. On a relative scale this will not produce a measureable effect on the overall post-fire hydrology.

Alternative 2 (No Action)

Direct and indirect effects, as well as cumulative effects will be similar to the proposed action, except existing sediment input from roads will continue and it will take longer for vegetation to become established.

UPLAND VEGETATION/SPECIAL STATUS PLANT SPECIES

Affected Environment

Species and Habitat Descriptions

Habitat in the project area consists of approximately 7,600 acres of moderately to severely burned eastside ponderosa pine forest. Ponderosa pine is the dominant tree species; in wetter sites Douglas-fir, larch, grand fir, and western red cedar also occur. Native shrubs and subshrubs occurring in the area are ocean spray, Oregon boxwood, syringa, Prince's pine, current, and others. Forbs and grasses include beargrass, Idaho fescue, yarrow, pussy toes, dogbane, arnica, and in wetter sites ferns, columbine, buttercup, goldenthread, and others. The project area occurs within the 65,000 acres of similar habitat that burned during the August 2015 Carpenter Road Fire.

No federally listed threatened or endangered plant species are known to occur and none have potential to occur in the project area.

One Washington State sensitive plant species occurs within the project area and is on BLM administered land. Dwarf milkvetch (*Astragals microcystis)* is a taprooted perennial in the fabaceae or pea family. Its range is from the eastern Olympic Mountains in Washington east into Wyoming and southern British Columbia. In eastern Washington it grows at low elevations in sandy/gravelly soils on open woods or riverbanks. Dwarf milkvetch has one known occurrence with in the project area. That occurrence is on BLM lands in an area that had a high severity burn in the 2015 Carpenter Road Fire. The area was evaluated by a BLM botanist shortly after the fire and the plants appear to have been burned over. If the seed bank is still intact the seeds from this plant will likely germinate in spring of 2016.

Environmental Consequences

Alternative 1 (Proposed Action)

The following proposed activities would have negligible impacts to sensitive plant species and native plant habitats within the project area as the sites were these activities would occur have no known sensitive plant occurrences and none are suspected:

- Fence building and maintenance
- Hazard tree removal
- Contour felling
- Scattering brush & limbs
- Road Maintenance and Repair
- Ground/Hand Seed Application
- Conifer Seedling Planting

Native plant habitats were affected by the 2015 fire. Proposed activities would benefit native plant habitats by re-establishing vegetation and reducing soil erosion. Design features are in place to protect the viability of any sensitive plant species that is found to occur prior to or during implementation.

In addition to the effects mentioned above, herbicide use along existing roads will prevent noxious weeds from dominating areas and thereby allow native vegetation to dominate. The effects of herbicides on native plants were analyzed by BLM in Programmatic Environmental Impact Statement Using Herbicides on Bureau of Land Management Lands in 17 Western States (BLM 2007) and are summarized and incorporated here by reference.

> Picloram, glyphosate, and chlorsulfuron all pose some risk to native broadleaf plants. However treatments would minimize the risk to native plant habitats by doing spot treatments in areas where noxious weeds are mixed into areas that are primarily native plants. In those areas dominated by invasive plants, incidental native individuals are likely to be effected. Chemical treatment to control, reduce, or eradicate populations of invasive plants would not pose a risk to native plant habitats. Treated areas will be monitored for effectiveness of treatment. If needed native seeding would be done post treatment. Effects from chemical treatment of invasive plants would be limited in time and scope on native plants and would not contribute to a reduction of the viability of native plant habitats within the project area.

Cumulative Effects: Past and ongoing activities within the project area and on adjacent private lands have led to habitat modification and fragmentation. Road construction, mining, recreational use, timber harvest, vehicular traffic, and wildfires, have contributed to the encroachment of noxious weeds and invasive plants into the area and the localized reduction of native species diversity where weeds take over. Some native plants may be limited in their population size by this habitat modification. Current and reasonably foreseeable activities within the project area include use of roads and trails, road maintenance, fire suppression, fence maintenance, and weed treatments. These types of activities would likely result in new disturbed sites available for colonization by noxious weeds and invasive plants or spread of existing populations of invasive plants. The area has previously been treated for noxious weeds and invasive plants and treatments of noxious weeds and invasive plant species are ongoing. Human activities along with animals and other natural events like wind, fire, and water may all serve as vectors for establishment and spread of noxious weeds and invasive plants that could contribute to additional native habitat modification. Overall, the anticipated actions, both

individually and cumulatively, as described under the Spokane District RMP as amended, are expected to have no impact on dwarf milkvetch or habitat important to its persistence. Native habitat is likely to benefit from many of these activities such as seeding and planting.

No Action (Alternative 2)

The impacts of allowing natural recovery of wildfire affected areas would be negligible for dwarf milkvetch. The site has had a high severity burn and would not be further impacted if no activities occurred.

Native plant habitat is likely to continue to degrade if no stabilization treatments such as tree planting and seeding occur. Native plant habitat has previously been impacted from mining, timber sales, road construction, recreation, and other natural events. Native habitat would be reduced if noxious weeds and invasive plants are allowed to grow untreated. Additional areas of land have been disturbed from the fire creating opportunities for noxious weeds and invasive plants such as knapweeds and houndstongue to become established and spread. Human activities along with animals and other natural events like wind, fire, and water may all serve as vectors for noxious weeds and invasive plant spread that could contribute to additional native habitat modification. Overall, this alternative is expected to have no impact on dwarf milkvetch. However by not doing stabilization activities and noxious weed and invasive plant species control, along with the previous disturbance, the cumulative effects would likely result in moderate to heavy degradation of native habitats, especially in high intensity burn areas.

NOXIOUS WEEDS AND INVASIVE PLANTS

Affected Environment

The treatment proposals are within a forest land environment identified as the South Huckleberries. There have been forest stewardship harvesting projects on-going within the project area. Currently, due to the recent wildfire, the project area has encountered disturbance creating bare/exposed ground susceptible to introduction or spread of noxious weeds or invasive plants. A variety of noxious weeds and invasive plants occur in the project area (see Table 1). Herbicides and mechanical control methods are not currently being used in the project area, but are proposed to prevent expansion beyond pre-fire conditions.

All herbicide applications on federally managed lands follow manufacturer herbicide label instructions, specifications, and precautions; all federal, state and local laws, rules and regulations; and BLM policy. Herbicide treatments will be implemented in accordance with SOPs outlined in the Record of Decision for the PEIS (BLM 2007). In instances where herbicide labels, federal, or state stipulations overlap, the more restrictive criteria applies.

Table 1: Invasive Plants and Washington State-listed Noxious Weeds Known to Occurr within the Project Area

Common Name	Scientific Name	Weed Class
Diffuse Knapweed	*Centaurea diffusa*	B non-designate
Rush Skeletonweed	*Chondrilla juncea*	B designate
Dalmatian Toadflax	*Linaria dalmatica ssp.dalmatica*	B non-designate
Houndstongue	*Cynoglossum officinale*	B non-designate
Canada Thistle	*Cirsium arvense*	C
Bull Thistle	*Cirsium vulgare*	C
Common St. Johnswort	*Hypericum perforatum*	C
Cheatgrass	*Bromus tectorum*	Invasive, not designated in WA
Teasel	*Dipsacus sylvestris*	Invasive, not designated in WA
Tumble Mustard	*Sisymbrium altissimum*	Invasive, not designated in WA
Medusahead Wildrye	*Taeniatherum caput-medusae*	Invasive, not designated in WA
Common Mullein	*Verbascum thapsus*	Invasive, not designated in WA

The primary noxious weed law in Washington is Chapter 17.10 RCW, with the primary purpose to limit the economic loss and other negative impacts that noxious weeds cause in agriculture, natural resources, and human health and safety. The noxious weed laws are administered through the Washington State Noxious Weed Control board, county noxious weed control boards, weed districts, and the Washington State Department of Agriculture. Weeds included in Class B consist of those noxious weeds not native to the state that are of limited distribution or are unrecorded in a region of the state and that pose a serious threat to that region and are designated for control in certain areas where the species' are not widespread (B Designate) and do not require control in areas where they are already widespread (B Non-Designate); Class C consists of any other noxious weeds and are presumed already widespread and do not require control.

Environmental Consequences

Alternative 1 (Proposed Action)

Direct and Indirect Effects: Under the proposed action, road maintenance and repair would have short-term impacts associated with exposed soil that would influence the establishment and spread of invasive and noxious weeds within the project area. BLM maintained roads are heavily utilized by recreationalists and thus increasing the potential for establishment and spread. Biological, mechanical and ground based spot application of herbicides such as glyphosate, chlorsulfuron, and picloram would be used at acceptable rates depending on species and infestation level and implemented in accordance with standard operating procedures (SOPs) outlined in the PEIS (BLM 2007).

Short and long-term impacts from herbicide applications and subsequent seeding would include the mortality and reduction of established weed infestations while promoting establishment of desired perennial vegetation. Soil stability and restored habitat quality for wildlife would also be benefitted by treatments. All herbicide applications will be conducted using SOPs and site-specific measures to prevent drift and off-target overspray. Glyphosate is a non-selective systemic herbicide that can damage all groups or families of non-target plants to varying degrees. Glyphosate was selected because of its broad-spectrum ability to remove invasive and noxious vegetation prior to seeding and low mobility in soil due to its tight adsorption to soil particles. Chlorsulfuron is a selective herbicide used on perennial broadleaf weeds and grasses. Chlorsulfuron is highly active, with only small concentrations required to kill target plants. Picloram acts as a plant growth regulator and is reportedly a good choice for vegetation management in habitat modification situations because it can manage undesirable broadleaf species, including woody species, without injury to desirable grasses.

Mechanical treatments, including mowing would have a short-term direct impact of removing the production capability of vegetation. This treatment is selective to an area but not necessarily to a particular species. The selectivity is dependent upon the equipment used. A weed eater can be selective, where a brush mower is less selective. Mechanical treatments can be effective but will likely need long-term annual maintenance to control noxious or invasive plants. Biological treatments are selective to individual species and have little to no impact to non-targeted or desired vegetation. This treatment method is designed as a long-term control method and is not very effective to control the short-term concerns associated with the proposed treatments. It may be very effective for long-term control within the boundary and extended area of the ESR project.

Cumulative Effects: Proposed salvage harvest of up to 250 acres along with associated roads and landings encompasses approximately 3% of BLM acres burned in the Carpenter Road fire. Treating the existing noxious weeds and invasive species, known to occur along roadways, in landing areas, and outlying areas associated with timber harvest activities would limit and exclude noxious weed invasions, provided that key functional and structural groups are supporting ecological processes and there are limited niches where weed populations could establish. The proposed treatments are unlikely to disproportionately contribute to cumulative effects across the Carpenter Road fire ESR area due to the size of the treatment area. There are other, non-federal and tribal lands within or adjacent to project area that may use herbicides and mechanical methods to control or remove unwanted vegetation related to Washington noxious weed laws and silviculture practices associated with forest health and tree production.

Alternative 2 (No Action)

Direct and Indirect Effects: Under the no action alternative, fire-ravaged land could see three to four times more weeds next year than it had before the fires (Sheley and Goodwin undated). Wildfires make more nutrients available and the plants that grow fastest have a chance to take up the nutrients (Sheley and Goodwin undated). Noxious weeds and invasive plants are likely to increase due to local dispersion processes as

well as vectors such as vehicles, birds, wildlife, and wind. Within the project area, it is unclear if the current composition of native and non-native vegetation will adequately resist future noxious weed invasions or facilitate colonization of invasive plant species. Many noxious weeds are capable of invading well-managed undisturbed areas. Site stability and ecological processes in the project area do not appear to be failing but the stewardship forestry project that has been ongoing in the treatment area has created the potential to contribute to noxious weed establishment and spread. Declining plant community integrity due to lack of species diversity and key functional/structural groups within the stewardship forestry areas may become more vulnerable to weed invasion over time. If plant community health, due to wildfire impact, were to further decline and the potential spread from road systems is not addressed; then under the current conditions, following wildfire, the potential risk of degradation of ecosystem processes may increase.

Cumulative Effects: The current plant community composition and cover would be vulnerable to negative impacts associated with the wildfire. Without the implementation of the proposed actions associated with the Carpenter Road fire ESR there is a greater risk to soil erosion, leading to greater potential of noxious weed and invasive establishment and spread. The current vegetative component may provide adequate suppression of invasive annual grasses and noxious weeds in the interior of burned area, once recovered. Populations of noxious weeds and invasive plants would continue to occur within the project area and along roadways and trails leading into and through project area. Weed dispersal across the area would also continue to be influenced by adjacent land management uses and corridors, such as timber harvests, mining, recreation and numerous county and state rights of way. The management and use of forest products, mining, and recreation activities in and adjacent to the project area, post wildfire, would contribute to a higher risk of weed establishment and spread. Burned areas can contain high nutrient levels, exposed ground surfaces, and reduced shade. These favor weed colonization and exponential weed growth, which can prevent reestablishment of desired vegetation and displace already established native plants. If permitted to reach large infestation levels, the resulting weed population will be very difficult and expensive to manage. (Goodwin and Sheley 2001.)

WILDLIFE

Affected Environment

Habitat in the project area consists of approximately 7,600 acres of moderately to severely burned eastside ponderosa pine forest. Ponderosa pine is the dominant tree species; in wetter sites Douglas fir, larch, grand fir, and red cedar also occur. Habitat elements important to wildlife within eastside forests include: snags, down wood, closed-canopy forest, and grass/forb and shrub-seedling stages (Sallabanks et al. 2001). The project area lies within 65,000-acres of similar habitat that also burned in the Carpenter Road Fire. No federally listed threatened or endangered wildlife has potential to occur in the project area, but important big game, migratory bird, and BLM sensitive species do occur.

Big Game: The project area and surrounding forests in the southern Huckleberry Mountains support regular concentrations of moose. Moose populations have been increasing over the past decades and are considered robust in the southern Huckleberries (WDFW 2014). Moose commonly select 15-25 year-old regenerating forests or pre-commercially thinned forest stands on moist sites. Forest regeneration in these areas tends to produce dense stands of willow and other shrubs which are preferred browse. Current post-fire conditions are generally lacking dense stands of shrubs due to fire effects, but conditions should become ideal for moose in the next 15-25 years.

White-tailed and mule deer are locally common in the Huckleberry Mountains. Severe winters and prolonged summer drought are important factors driving local deer populations. Approximately 300 acres of the project area (associated with the Cleveland mine parcel) are mule deer winter range.

Migratory Birds: Birds of Conservation Concern (BCC) known or suspected to be present in the project area include flammulated owl, calliope humming bird, Lewis's woodpecker, Williamson's sapsucker, white-headed woodpecker, olive-sided flycatcher, willow flycatcher, and Cassin's finch. Habitat elements important to migratory birds in eastside pine forests include: late-successional forest conditions (large trees, snags, and canopy closure), grassy openings, thicket patches, open understories with regenerating pines, and burned old forest (Altman 2000). The current post-fire conditions are generally lacking late successional habitat elements, but new snags, grassy openings, patches of thickets, and regenerating pines are present and expected to increase as the vegetation recovers.

BLM Sensitive Species**:** The following sensitive species are known or suspected in the project area: gray wolf, pygmy shrew, little brown bat, Townsend's big-eared bat, and Lewis' and white-headed woodpeckers (see migratory bird section). The Huckleberry wolf pack consists of at least 8 wolves in the project area (WDFW 2013). Gray wolves are habitat generalists relying mostly on the availability of ungulate prey and protection from persecution.

Pygmy shrews are rare and known from only a handful of detections in the southern Huckleberries, therefore their occurrence is possible in the project area, but not likely to be widespread. Being forest floor insectivores, large-diameter down woody debris is an important habitat element for pygmy shrews (Gervais 2015).

Townsend's big-eared and little brown bats are known to the project area from several mine adits that are used as maturity colonies and roosts. Both species are associated with riparian areas and use trees and snags for roosting. Additionally, Townsend's big-eared bats are highly sensitive to human disturbance at roosts.

Environmental Consequences

Alternative 1 (Proposed Action)

Direct and Indirect Effects: Impacts of the proposed action to wildlife include the construction of 4-miles of border fence, hazard tree removal along road sides, and noxious and invasive weed control using herbicides. Other components of the proposed action only minimally change wildlife habitat (obscuring archaeological sites with brush), or are so temporary and routine (road maintenance) that impacts from these cannot be measured and are considered negligible.

Border Fence: Mule deer cross fences by jumping over the top strand, crawling underneath the bottom strand, or crossing between strands. Mule deer and elk neonates must cross underneath fences during the first weeks of life. The fence construction includes specifications developed form the Intermountain West Ecoregion Mule Deer Guidelines (Cox et al. 2009). Deer and moose passage will be interrupted by the fence and will cause big game to alter their behavior and movement patters to find advantageous crossing points and there is a small risk of wildlife entanglement. However, because the fence is designed to be permeable to big game, seasonal movement patters will not be affected.

Hazard Tree Removal: Within 100 feet of roads, individual hazard trees and snags will be cut and left on site. It is not known how many hazard trees will be felled, but typically they constitute a small percentage of the overstory. There would be a loss of habitat to snag and large tree-associated species such as Lewis's woodpecker, Williamson's sapsucker, white-headed woodpecker, olive-sided flycatcher, willow flycatcher, and Townsend's big-eared and little brown bats. Conversely, there would be a habitat gain for the pygmy shrew that depends on down woody debris on the forest floor. Both of these impacts would occur on less than 150 acres dispersed over a 20-mile road network.

Seeding, Planting and Weed Control: Seeding the grass/forb mix on 40 acres and planting conifers on approximately 100 acres will have only beneficial effects on wildlife. The additional herbaceous vegetation in the Cleveland mine area may be used as forage by big game in the winter and spring when food resources are scarce. Conifer planting will accelerate the recovery of an overstory needed for big game thermal cover and habitat for migratory birds.

Herbicide use along existing roads will prevent noxious weeds from dominating areas and thereby allow native vegetation that is used as forage and cover for wildlife to dominate. The effects of herbicides on wildlife were analyzed by BLM in the PEIS Using Herbicides on Bureau of Land Management Lands in 17 Western States (BLM 2007) and are summarized and incorporated here by reference.

- Picloram poses effectively no risk to wildlife because toxicity levels are below the published levels of concern for most exposure scenarios. Even under maximum rates there is only low risk for direct spray and acute consumption scenarios.

- Glyphosate poses low to moderate risk to wildlife receptors. Direct glyphosate spray of a small animal (such as a pygmy shrew) and acute consumption of contaminated grass (big game) or contaminated insects (bats and migratory birds) poses moderate risks at the maximum application rate. This risk is mediated by the spot application technique (small amounts dispersed over large areas) which minimized the likelihood of acute consumption.
- Chlorsulfuron poses effectively no risk to wildlife because toxicity levels for all exposure scenarios are below even the most conservative levels of concern.

Cumulative Effects: The effects of this project include: 1) slight alterations in big game behavior and the small risk of wildlife entanglement due to the 4 miles of border fence re-construction, 2) small amounts of tree and snag losses and increases in down woody debris over the 150-acre hazard tree removal area, 3) increased herbaceous forage over the 40-acre seeding, 4) accelerated recovery of forest overstory in the 100-acre tree planting area, and 5) weed management that will allow for increased native forage with low risk of toxicity to wildlife.

Similar post fire actions are assumed to occur over most of the 65,000-acres of similar habitat that also burned in the Carpenter Road fire. There is a concurrent BLM proposal to salvage log up to 250 acres in the fire area. Combining the hazard tree removal from this proposed project (150 acres) with the salvage logging (up to 250 acres) will cumulatively reduce tree and snag habitat on 400 acres (5%) of the 7,600 acres of eastside ponderosa pine habitat in the project area. If similar salvage operations are assumed on other ownerships, then up to 13,000 acres of selective tree and snag habitat loss could occur. The BLM's 400-acre impact represents about 3% of the salvage operations reasonably expected to occur.

Alternative 2 (No Action)

Direct and Indirect Effects: Without the proposed project the 4-mile border fence would not be build and wildlife would be able to move freely without interruption or minor changes to their behavior. Hazard trees and snags over a 150-acre area would remain and continue to support habitat for migratory birds and bats. Noxious weeds would increase over approximately 200 acres of roadsides and over 40 acres in the Cleveland mine area and outcompete native vegetation used as wildlife habitat.

Cumulative Effects: Without action, cumulative effects of salvage operations on other ownerships and the 250-acres BLM salvage proposal would be assumed to continue, but hazard tree and snag removal associated with this project would not occur. Not removing hazard trees in this proposal would avoid accruing impacts to 150 acres, which is less than 3% of the habitat expected for treatment under other proposals in the Carpenter Road fire area and represents less than 0.2% of the total burned area.

CULTURAL/PALENTOLOGICAL RESOURCES

Affected Environment

Silver was discovered along Cedar Canyon within the southern Huckleberry Mountains in 1894. The first claims were staked in the vicinity of the Deer Trail Mine that year as numerous miners began to inhabit the area. Shafts, tunnels, prospect pits, roads, ore rail systems, log cabins and other mining infrastructure were added to the landscape. The Deer Trail Mining District was established and camps were constructed around the most productive ore bearing areas. From that point forward, more discoveries were made in the Huckleberry Mountains, which resulted in productive mines and hundreds, if not thousands, of smaller prospects. The most noteworthy and largest mines in the fire area include the Deer Trail Mine, the Queen Seal Mine, the Turk Mine, the Toga Mine, the Plata Rica Mine, the Germania Mine, and the Cleveland Mine. The primary ore bodies that were mined contain metals including silver, lead, zinc, and tungsten. Only a handful of mines still operate in the area, including the Deer Trail Mine, but ongoing prospecting continues periodically as demands increase for these metals. The remains of the 1890s structures are mostly gone, either due to fire, logging, later mining activity, or natural deterioration, but many of the cabin remains were still visible prior to the Carpenter Road Fire. As a result of this fire, most of the cabins and other structures were destroyed either directly by the fire, or from fire damaged trees falling onto the sites. However, with the loss of vegetative cover, new features have recently been discovered, including “can dumps” and other significant features. Some of these are located near existing roads or trails, and are now more visible and susceptible to vandalism or looting.

No known pre contact sites or traditional cultural properties are recorded in the fire area although it is known that Native American traditional uses such as huckleberry picking, resource gathering, and hunting continue to occur. Some of the drainages in the fire area have indigenous names, such as Chamokane Creek and O-Ra-Pak-En Creek. It is possible that material evidence of pre contact use occurs in the area, though heavy duff and vegetation as well as past mining and early logging practices likely have buried, obscured, or destroyed these objects and features over time.

There are no known paleontological resources in the project area so there would be no effects.

Environmental Consequences

Alternative 1 (Proposed Action)

Direct and Indirect Effects: Potential impacts of the proposed action to cultural resources include treatments along roads (hazard tree removal, noxious weed/invasive control), cultural site stabilization, ground/hand grass seeding, and conifer tree seedling plantings. Fence repair should have no effect to cultural resources because it is replacement of an existing fence that has previously been inventoried for cultural resources and there are no sites located along the alignment. Ground disturbance

associated with road maintenance will be restricted to the existing road prism, also alleviating potential impacts.

Hazard Tree Removal: Tree felling has a small potential to damage cultural sites if the tree is felled over a site that could be damaged by the impact. Removal of hazardous trees near sites by falling them away from the site may benefit the cultural resource by eliminating the potential for future damage to a site.

Noxious Weed and Invasive Control: Controlling noxious and invasive weeds will allow for better reestablishment of native vegetation, including berries and other plants that are traditionally gathered by Native Americans. Tribal elders have less ability to walk long distances into the forest to gather plants, so roadsides are important gathering places for them. By controlling the weed populations along the access points, native plant gathering should be more successful for tribal elders.

Cultural Site Stabilization: Measures such as spreading forest litter, duff and limbs around cultural sites that are susceptible to vandalism/looting or soil erosion will help protect these resources. The sites will have less visibility and soil will be less likely to be displaced in the vicinity of the sites with ground cover. This will be most beneficial to sites along roads/trails where ground cover is absent and on severely burned areas where slopes are over 20% and soil erosion is expected to occur.

Ground/Hand Seed Application: Planting grass seed in areas where little or no seed bed is present and where recruitment of forest litter is not likely to occur will benefit archaeological sites by the same methods as discussed above in cultural site stabilization.

Conifer Tree Seedling Planting: Planting seedlings will require minor soil displacement. No seedlings will be planted in sites where features could be damaged. Reestablishing trees will aid in soil stabilization over time as well as aid in decreasing site visibility.

Cumulative Effects: *Hazard Tree Removal:* Because this has such a minor potential to affect cultural sites, there would be no cumulative effects to cultural resources.

Noxious Weed and Invasive Control: Past and present practices have increased the amount of noxious weeds and invasive plant species since the late 1800s when mining activity was initiated, followed by road building and timber harvest in the southern Huckleberry Mountains. This had led to the loss of available traditionally gathered plants particularly along roadsides in the greater area, including the Spokane Indian Reservation. The fire has added to the loss of these available resources, and to the inevitable weed infestation that will likely spread through the area. Controlling these weeds will have beneficial effects to the native plant populations over time, and in the greater area, thus helping to preserve and continue a traditional Native American practice of plant gathering.

Cultural Site Stabilization: The loss of cultural resources due to fire, past logging practices, post-1950 mining practices that used bulldozers, and natural deterioration

have greatly decreased the number of historic sites in this and the surrounding area. Those sites that are left leave only a glimpse of what transpired in this important period of Stevens County mining history. The contributions that these mines made to the United States economy and the Great War efforts are a significant feat. By helping preserve the sites that are left through stabilization and protective measures, important historical information remains available for future interpretation and understanding of past lifestyles and mining practices.

Ground/Hand Seed Application: Planting native grasses is a short term erosion control treatment, but will lead to reforestation, sustainability and improved health of the forest ecosystem over time. This in turn benefits cultural resources by lessening the potential for permanent soil erosion and loss of historic sites.

Conifer Tree Seedling Planting: Overtime, reestablishment of the forests will aid in stabilization of the soil and healthier ecosystems in general. While the seedlings will provide no short term benefits to curtailing soil erosion, the cumulative effects of this action as well as grass seeding will help to restore and maintain the historic landscape of the southern Huckleberry Mountains.

Alternative 2 (No Action)

Direct and Indirect Effects: Under this alternative there would be no emergency stabilization and rehabilitation measures to help aid in preservation of cultural resources and reestablishment of native plant species important to Native Americans.

Cultural resources such as historical items left behind by past miners will be more vulnerable to looting and vandalism due to increased exposure of sites. Increased erosion can be expected in areas that were severely burned, thus posing potential impacts to sensitive archaeological sites, including abandoned mines and structure remains. Noxious and invasive weeds will continue to overtake disturbed roadsides, thus decreasing the potential for recovery of native plant species important to Native Americans.

Cumulative Effects: Archaeological sites will likely degrade at a faster pace due to lack of erosion control and protective measures. The historic landscape will take longer to recover without seedling planting and other stabilization measures as it is likely noxious weeds will encroach along roadways where some of the sites are located. The overall effect would be a decrease in effective recovery time and greater potential for loss of important archaeological sites important to American history, as well as loss of Native American plant gathering areas which have decreased in surrounding areas over time due to logging, ranching, wildfire, farming, and other disturbing events/practices.

COORDINATION AND CONSULTATION

This Environmental Assessment was prepared by an interdisciplinary team of BLM resource specialists representing various natural resources, including soils, hydrology, wildlife habitat, cultural values, and forestry. Public collaboration for this project is consistent with the 2006 10-Year Strategy Implementation Plan.

The BLM collaborated with the Spokane Tribe of Indians, surrounding communities, and adjacent landowners during the planning of this project.

The BLM initiated consultation for this project with the Washington State Department of Archaeology and Historic Preservation (DAHP), the Confederated Tribes of the Colville Reservation, and the Spokane Tribe of Indians on October 16, 2015. Concurrence on the definition of the Area of Potential Effect was received from DAHP on October 26, 2015. The Spokane Tribe responded on October 27, 2015 with concurrence on the proposed treatments. A finding of No Adverse Effect to Historic Properties was sent to the DAHP on November 2, 2015. Concurrence on this finding was received on November 3, 2015.

The BLM will notify project partners, stakeholders, and the general public when a decision is made on the proposed project. Public notification will be disseminated through a press release and/or public notices in local newspapers or other media outlets.

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ATTACHMENT 1: MAPS

1) Carpenter Road Fire Perimeter
2) Carpenter Road Burn Severity (BARC)
3) Carpenter Road Fire ESR Plan
4) Fence Repair
5) Hazard Tree Removal
6) Road Maintenance
7) Noxious Weed Control North
8) Noxious Weed Control South
9) Seeding and Planting North
10) Seeding and Planting South